

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

INTERMEC IP CORP.,	)	
a Delaware corporation,	)	
	)	
Plaintiff,	)	
	)	
v.	)	Civil Action No. 04-CV-357 (GMS)
	)	
SYMBOL TECHNOLOGIES, INC.,	)	
a Delaware corporation,	)	
	)	
Defendant.	)	

**SYMBOL'S REBUTTAL CLAIM CONSTRUCTION BRIEF**

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## **I. INTRODUCTION**

The parties submitted opening briefs on July 25, 2005 construing disputed claim limitations in 3 of the 4 patents-in-suit. Symbol submits this rebuttal brief in response to Intermec's Opening Brief and explains why Intermec's claim constructions are incorrect and should not be adopted.

A *Markman* claim construction hearing is scheduled for September 7, 2005.

## **II. BACKGROUND**

For the convenience of the Court, Symbol's Opening Brief provided a general tutorial of the technology involved in the patents-in-suit. We respectfully refer the Court to that tutorial, which will not be repeated herein.

Although the parties have agreed to the construction of all of the terms of Claim 1 of the asserted '375 Patent (Exhibit D to Intermec's Opening Claim Construction Brief filed July 25, 2005), the Court might be interested in a short description of the technology pertinent to that patent. The '375 Patent is directed to a RF tag, either passive or active, which stores an identifier, such as an unique identification code, in the memory of the tag. The alleged invention is the provision of a machine readable code, such as a bar code, that is "associated" (i.e., perceptually linked) with the RF tag. Figures 1 and 4 (set forth below) of the '375 Patent depict a bar code that is "associated" with the RF tag:

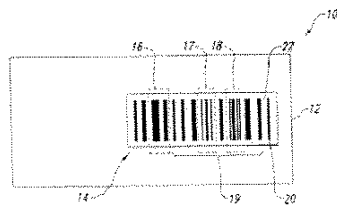


Fig. 1

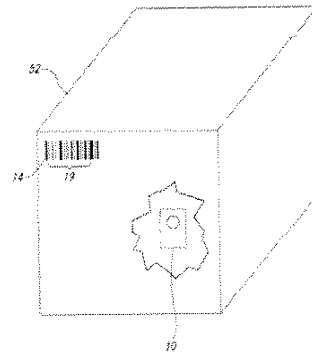


Fig. 4

In Figure 1, the bar code is located on the RF tag. In Figure 4, the bar code and the RF tag are located on the same box, but in separate locations. The bar code encodes an identifier code “logically associable” with the RF tag identifier; in other words, a correspondence can be drawn between the bar code identifier and the RF tag identifier, e.g., the identifiers are the same or correspond to each other in a database.

### III. THE ‘222 PATENT

Claim 1 of the ‘222 Patent, the only asserted claim, has three limitations that require construction by the Court: “adjacent proximity,” “connecting lines” and “coplanar.”

Symbol’s construction relies on the meaning of the terms as they are defined in the patent by the patentees -- in the patent specification, the patent file history and the patent claims. Thus, Symbol’s construction complies with the Federal Circuit’s recent teaching in *Phillips v. AWH Corp.*, \_\_ F.3d \_\_, 2005 WL 1620331 (Fed. Cir. 2005) (en banc). Intermec, in contrast,

provides litigation-driven constructions which ignore the file history and the context of these limitations in the patent specification.

As an initial matter, Symbol takes issue with Intermec's characterizations of the "facts" and the technology involved in the '222 Patent (Exhibit 3)<sup>1</sup>.

First, Intermec inaccurately states in its Opening Brief at 4 that "the tags at issue are passive tags." In fact, the '222 Patent discloses both passive tags (see Fig. 5) and active tags (see Fig. 6, which includes battery 660). Moreover, dependent claim 19, which depends from independent claim 1, recites a battery. Because of the principle of claim differentiation, independent claim 1 is directed to both active and passive tags. *Phillips*, 2005 WL 1620331 at \*7 ("Differences among claims can also be a useful guide in understanding the meaning of particular claim terms.")

Second, despite its assertion that "[r]esort to extrinsic evidence is not necessary," Intermec relies on conclusory arguments about the prior art for its claim construction. Intermec Opening Brief at 1. Specifically, in purporting to explain the "invention" of the '222 Patent, Intermec improperly characterizes the prior art:

[The invention is] in contrast to the prior art tags, which did not use flexible substrates and where the different components might be mounted on different substrates i.e, on different electrical planes, which would then be stacked on top of one another... The stacking of substrates ... adds thickness to the tag and reduce[s] its flexibility.

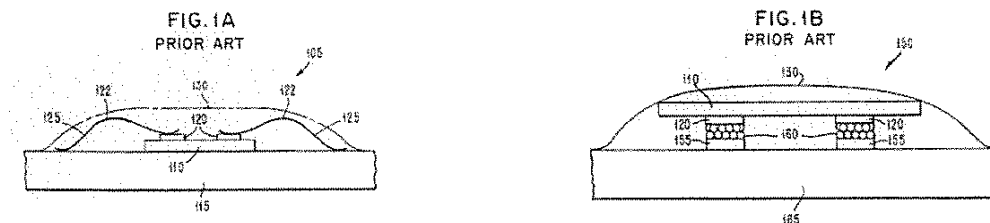
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<sup>1</sup> All exhibits cited herein are separately bound in the Appendix of Exhibits in Support of Symbol's Claim Construction filed on July 25, 2005.



Intermec Opening Brief at 5. Intermec does not, because it cannot, cite to intrinsic evidence in support of its argument. Even though the patentees describe the state of the prior art (Ex. 3 at Col. 2, lines 3-62), the specification never mentions the stacking of different substrates. Intermec thus relies on conclusory argument that, as the *Phillips* court has ruled, should be ignored. *Phillips*, 2005 WL 1620331 at \*10 (“conclusory, unsupported assertions by experts [and attorneys are far from experts] as to the definition of a claim term are not useful to a court”); *Insituform Tech. Inc. v. Cat Contracting, Inc.*, 99 F.3d 1098, 1106 (Fed. Cir. 1996) (attorney argument cannot control claim interpretation in light of the language of the claims).

In fact, the prior art tags of Figures 1A and 1B in the ‘222 Patent (excerpted below) refute Intermec’s attorney’s arguments:



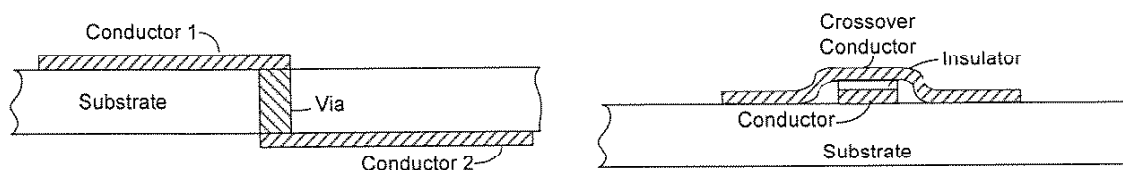
These figures depict a single substrate (115 and 165, respectively) in each prior art tag. Moreover, the description accompanying Figure 1B further refutes Intermec’s characterization of the prior art as “not us[ing] flexible substrates.” The patentees state that the prior art substrate 150 is “typically made as a ... flexible substrate.” Ex. 3 at Col. 2, lines 19-22.

The ‘222 Patent describes precisely how the “invention” improves on the prior art:

The prior art has failed to produce a thin tag because: ...elements are stacked one upon the next; and the antenna and connecting conductors require more than one plane of electrical wiring, i.e. the designs use cross-overs for completing interconnections.

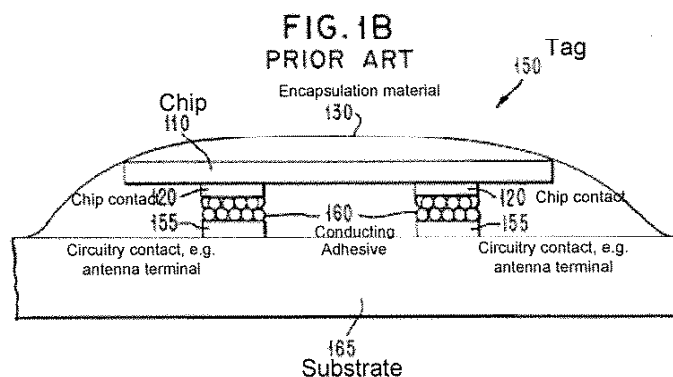
Ex. 3 at Col. 2, lines 46-51. Simply stated, the techniques of the prior art thicken the tags.

For the Court's convenience, a crossover, as well as a via (discussed herein), of the prior art are depicted below:



A via connects two conductive layers (conductors 1 and 2 in the left figure) by drilling a hole in the substrate and filling it with a conductor that connects the two conductors on the two layers. A crossover occurs when two conductors in one layer need to be connected but a third conductor is “in the way”; an insulator is laid over the conductor that is “in the way,” and a crossover in a second layer connects the two conductors in the first layer. In both of these prior art techniques, there are two planes of wiring, not one.

The patent includes figures depicting prior art techniques that thicken the tags. Figure 1B of the prior art is annotated below, based on the specification (Ex. 3 at column 2, lines 17-27):



In Figure 1B, the components (or elements) including substrate 165, circuit contact 155, conducting adhesive 160, chip contact 120 and chip 11 are all physically stacked one upon the next, and the conductors 155, 160 and 120 are in more than one plane.

The objective of the “invention” is to make the tags of the prior art thinner. As indicated by the prior art described in the patent, this objective can only be achieved by (1) using a flexible substrate, (2) placing the antenna and all of the electrical connections in a single plane of wiring with no “vias” or “crossovers,” and (3) placing the components physically next to each other so that they are not stacked. Ex. 3 at col. 3, lines 15-21.

With that state of the prior art as context, Symbol’s claim constructions, as set forth below, should be adopted.

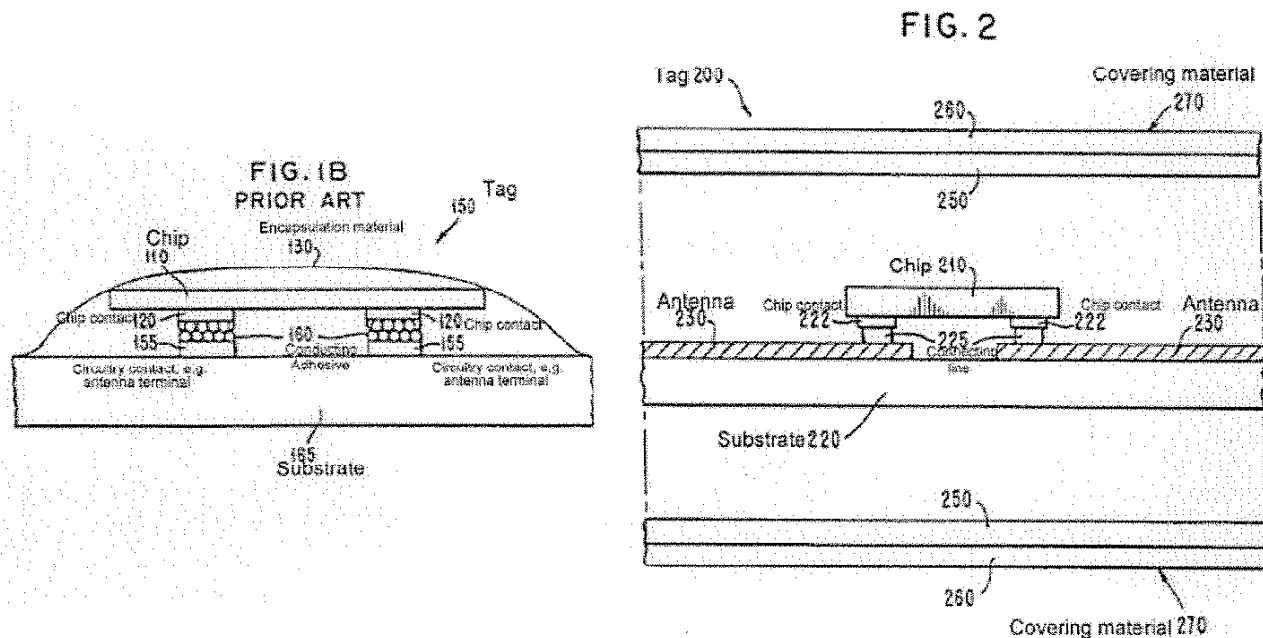
#### **A. Claim 1. “adjacent proximity”**

The parties agree that “adjacent proximity” means “close and not stacked” or “close with no stacking”; the parties’ disagree on the construction for “stacked” or “stacking.” Intermec contends that stacking refers to the stacking of electrical planes, and Symbol contends that it refers to the physical

position of the components. The plain language used in the patent specification and file history supports Symbol's construction.

The sole justification for Intermec's claim construction for "stacked" or "stacking" is its assertion that Figure 2 is described in the specification at column 4, lines 22-26. Yet, the specification shows the opposite. The clear meaning of the specification at column 4, lines 22-26 is that the exemplary embodiment shown in Figure 2 does not include the "further novelty" of adjacent proximity (i.e., no stacking). Instead, Figure 2 could be modified – as the patentee suggests -- to include that feature.

The fact that Figure 2 does not illustrate the "further novelty" of adjacent proximity is apparent from a comparison of the prior art Figure 1B with Figure 2 (set forth below with labels added for the Court's convenience):



There is a one to one correspondence between each of the stacked elements in Figures 1B and 2. Prior art Figure 1B stacks the following on substrate 165: the circuitry contacts (such as antenna terminals) 155, the conducting adhesive 160, the chip contacts 120, the chip 110 followed by the encapsulation (covering) material 130. Figure 2 stacks the following on substrate 220: the antenna contacts 230, the connecting lines 225, the chip contacts 222, the chip 210 and the covering material 270. The same elements are physically stacked the same way. The figures differ in one respect: the prior art Figure 1B uses conductive adhesive 160 between the chip contacts and the antenna contacts, whereas Figure 2 uses connecting line 225. Significantly, Figure 2 simply cannot show the adjacent proximity (i.e., no stacking) limitation as Intermec asserts; if it does, claim 1 reads directly on prior art Figure 1B. Furthermore, the mere fact that this feature is claimed, does not mean it has to be shown in Figure 2. *See, e.g., Nazomi Communications, Inc. v. ARM Holdings, PLC*, 403 F.3d 1364, 1369 (Fed. Cir. 2005) (claims may embrace “different subject matter than is illustrated in the specific embodiments in the specification.”)

Moreover, the patent specification and file history militate against Intermec’s construction for “stacked” or “stacking.” In the file history, as pointed out in Symbol’s Opening Brief at 13-14, the patentees specifically defined the term “adjacent” in the claim as originally filed to mean “no stacking of elements.” ‘222 File History, Ex. 4, Tab 1 at 10.

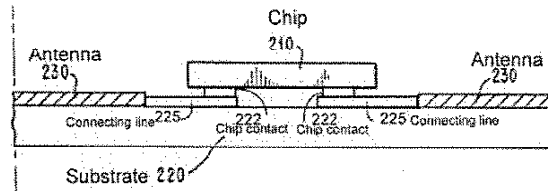
The patentees' definition is part of the original disclosure of the patent and is the best intrinsic evidence of the patentees' intent that the term "adjacent" means "no stacking of elements." The only "elements" recited in claim 1 are the antenna, circuit chip and connecting lines. Accordingly, the elements that are not stacked are, at the very least, the antenna, the circuit chip and the connecting lines. The patentees explicitly state that these elements are not stacked in the "invention":

Further novelty of the invention includes arranging the components (chip and antenna and possibly a battery) in adjacent proximity to one another. This means that the components are close (i.e., not stacked).

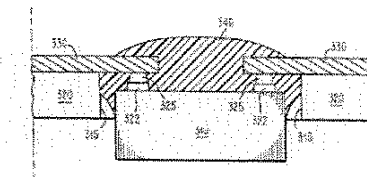
Ex. 3 at col. 4, lines 22-26 (emphasis added). In the context of claim 1, this means that the elements, including the antenna and chip, are on the substrate close to each other but not physically on top of each other.

The "Summary of Invention" provides further support for Symbol's position that "stacked" can only be referring to the physical location of the elements. The patentees state that, in their alleged invention, "[t]he elements of the package [tag] are placed adjacent to one another, i.e., they are not stacked." Ex. 3 at col. 3, lines 19-20 (emphasis added).

Moreover, as is illustrated below, it is easy to visualize what the patentees meant when they suggested the modification to Figure 2 to include the "further novelty" of adjacent proximity (i.e., no stacking):



In this rendering of a Figure 2 that is modified as the patentee suggests, the circuit chip 210 is not stacked on antenna 230. As a result, the tag is clearly thinner than the one shown in Figure 2; the tag above depicts 3 stacked elements instead of the 4 stacked elements in Figure 2. Indeed, the figure above can be made even thinner by cutting a hole in the substrate and placing the circuit chip on the substrate inside the hole. Figure 3 of the '222 Patent (excerpted below) captures this further modification:



In the excerpt from Figure 3 above, the circuit chip is in a hole or window 315 in the substrate 320; in this way, the chip is thinner than the chip depicted in Figure 2 because it is not stacked on top of antenna 330 on the substrate 320.

Simply stated, Intermec's construction contradicts the purpose of the alleged invention -- to make the overall tag structure thinner. Moreover, Intermec's construction for stacking renders the "adjacent proximity" limitation redundant in light of Intermec's construction for the "coplanar" limitation. Intermec agrees in its Opening Brief at 18 that "coplanar" means a single plane of wiring. Its construction for "coplanar" is the same as its construction for no stacking, i.e., a single electrical plane. Claim terms should not be construed to

make them redundant. *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 93 F.3d 1572, 1578 (Fed. Cir. 1996); *General American Transport. Corp. v. Cryo-Trans, Inc.*, 93 F.3d 766, 770 (Fed. Cir. 1996).

Accordingly, Symbol's construction of "stacked" or "stacking" should be adopted because it is consistent with how the patentees defined those terms. *Phillips*, 2005 WL 1620331, at \*8; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 864-65 (Fed. Cir. 2004) (holding that the patentees "explicitly define[]" the claim term at issue in the "Summary of the Invention" portion of the specification); *Ethicon*, 93 F.3d at 1578 (holding that patentees "unambiguously described" the claim term at issue in the specification).

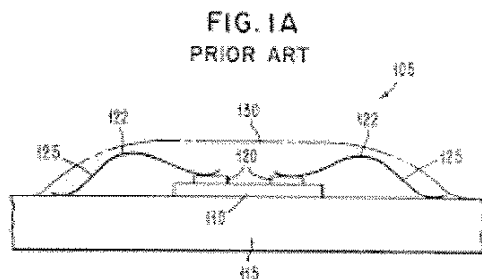
#### **B. Claim 1. "coplanar"**

The parties agree that the patentees defined the limitation "coplanar" to mean a single plane of wiring, but Intermec further limits the construction to preferred embodiments. In doing so, Intermec ignores the patent disclosure and violates the claim construction rules set forth by the Federal Circuit in *Phillips*. 2005 WL 1620331 at \*17-18 (holding that the claim term at issue was not limited to the structures disclosed in the preferred embodiment).

The patentees defined the term "coplanar" in the claims as originally filed as "no vias, crossovers, etc. single plane of wiring." Ex. 4, Tab 1, Application as originally filed on September 9, 1994 at 10. The plain meaning of this definition is that coplanar is a single plane of wiring which excludes



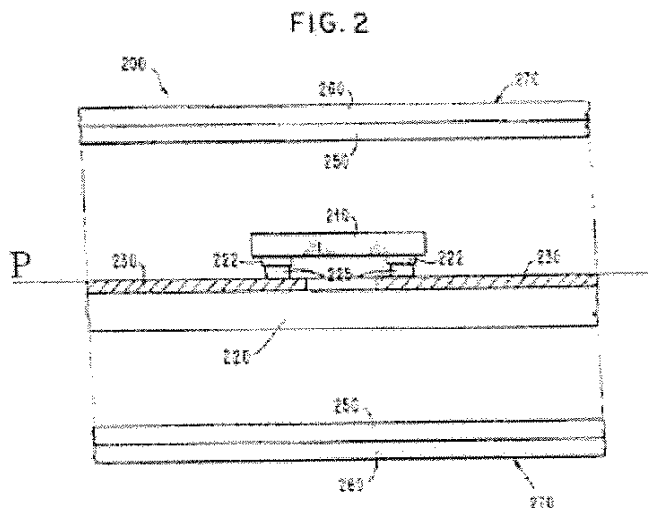
vias, crossovers and other similar techniques. One “similar technique” in the prior art is the wire bond 125 depicted in Figure 1A of the patent:



The “etc.” in the definition from original claim 1 includes the prior art wire bond that, as shown above, makes the tag thicker.

The “single plane of wiring” eliminates the wire bond and other prior art techniques that thicken the tag. The patentees explain that “[b]y using only one level of metal to produce the antenna and interconnections, the package is kept thin.” Ex. 3 at col. 4, lines 20-22. With respect to Figure 6, the patentees further explain that “[t]he wiring is kept in one plane.” *Id.* at col. 5, lines 41-42. By the very nature of using one level of metal, or keeping wiring in one plane, the need for prior art vias, crossovers and wire bonds that thicken the tag is eliminated.

Figure 2 further supports Symbol’s construction of “coplanar.” The embodiment of Figure 2 is depicted below:



As shown above, connecting lines 225 share a common plane (labeled “P”) with the antenna 230 and its terminals. Accordingly, the phrase “the connecting lines being coplanar with the antenna and antenna terminals” means that the connecting lines are in a single plane with the antenna and the antenna terminals. In this way, the tag of the ‘222 patent is thinner than the tags of the prior art.

### C. Claim 1. “connecting line”

Intermec’s construction for this limitation, “any substance that connects two or more electrical components,” violates two cardinal rules of claim construction. First, Intermec’s construction ignores and contradicts the unambiguous use of the term in the patent specification. *Boss Control Inc. v. Bombardier Inc.*, 410 F.3d 1372, 1379 (Fed. Cir. 2005) (citing *SciMed Life Sys. Inc. v. Advanced Cardiovascular Sys. Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001) (“Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims

of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.”)) Second, Intermec’s construction ignores and conflicts with how the term is used in other claims. *Phillips*, 2005 WL 1620331 at \*7 (“Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims”) (citations omitted).

The patentee’s careful distinction between what they considered “connecting lines” and what they considered other kinds of connectors undermines Intermec’s argument that “connecting lines” is any connecting “substance.”

The ‘222 Patent discloses only two connecting lines: (1) those between the circuit chip contacts and the antenna terminals (“antenna connecting lines”) and (2) those between the circuit chip contacts and the battery contacts (“battery connecting lines.”) Figure 6, as labeled below for the Court’s convenience, shows a top view of the battery connecting lines 661 and 662 connecting the battery 660 to the chip contacts (also called connectors) 625:

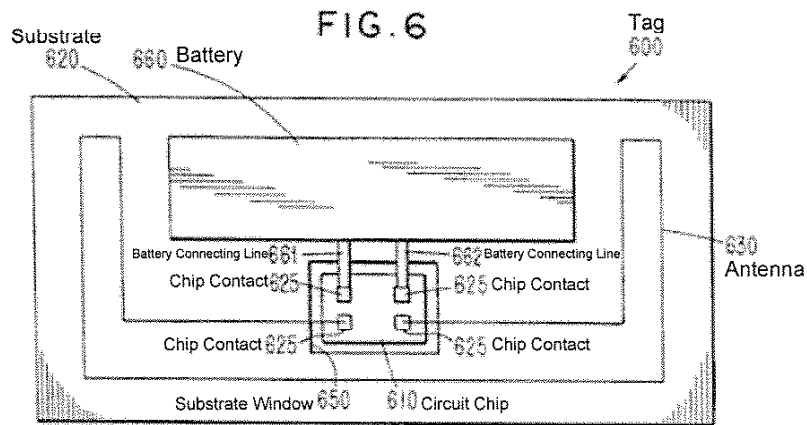
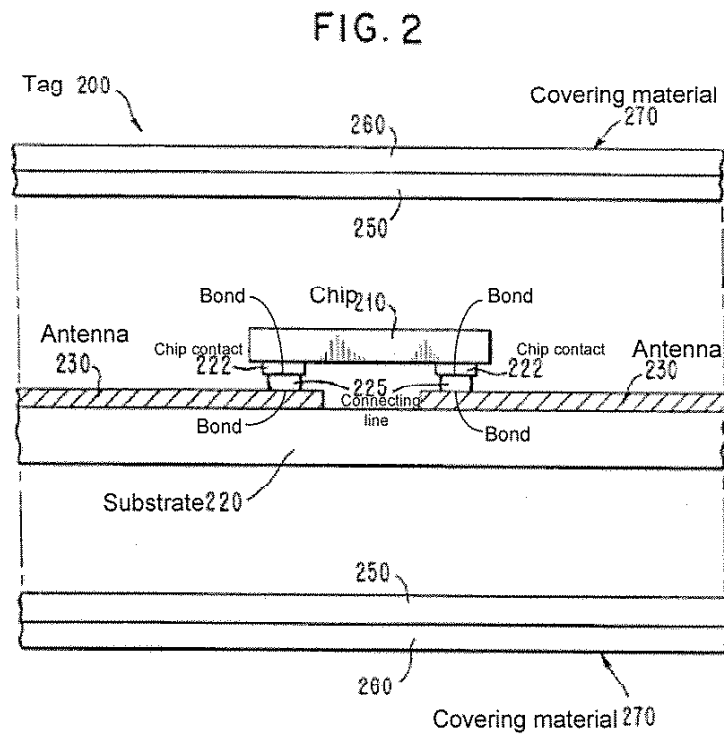
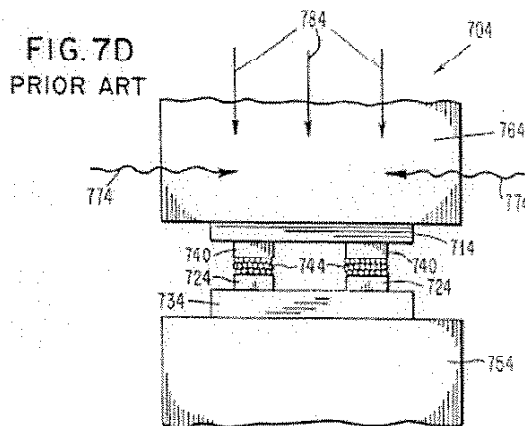


Figure 2, below, shows a side view of the antenna connecting lines 225, which are in direct contact with the terminals of antenna 230 and the chip contacts (also called connectors) 222:



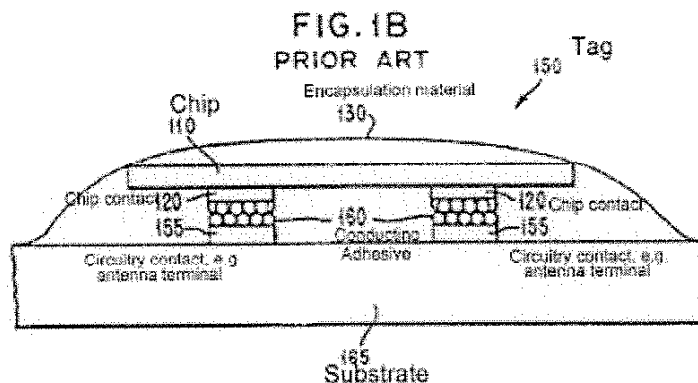
The patentees further disclose “bonds” or “bonding types” that are separate and distinct from the two kinds of “connecting lines” disclosed in the patent. In contrast to connecting lines that connect chip contacts to either antenna terminals or battery contacts, bonds connect the connecting lines themselves to the chip contacts, antenna terminals or battery contacts. In other words, connecting lines connect the contacts of components, bonds connect the connecting lines to the contacts of the components.

The patent includes examples of prior art bonding at Figures 7A-7E. Ex. 3 at col. 3, lines 46-50. An example of prior art bonding using a conductive adhesive 744 to connect chip contacts 740 to substrate pads (contacts) 724 is shown in a side view in Figure 7D excerpted below:



These bonding types are not described anywhere in the patent as connecting lines. In support of its construction, Intermec cites to the use of the term “connecting medium” to describe the metal filled adhesive in Figure 7D at column 6, lines 29-30. Although it is true that a conductive adhesive is a connecting medium, the patentees specifically did not call it a “connecting line”

as they did with respect to those specific elements in Figures 2 and 6. Moreover, the conductive adhesive of the prior art cannot be the same as the “connecting line” of the patent because the patent distinguishes between the two. Figure 1B below shows conductive adhesive 160 connecting the chip contacts 120 to the circuit contacts 155:



As previously discussed, the only difference between Figure 2 and the prior art Figure 1B is the use of a “connecting line” in the former and conductive adhesive in the latter to connect chip contacts to circuit contacts. Intermec’s construction renders Figure 2 and the prior art Figure 1B identical and causes claim 1 to read directly on prior art Figure 1B.

Furthermore, the unasserted claims of the patent prove that the patentees clearly distinguished between “connecting lines” of the patent and bonding types. Dependent claim 5 (which is not asserted) depends from claim 1 and adds the bonding types as separate and distinct element from the antenna connecting lines recited in claim 1. Claim 5 states, “the connecting lines are bonded to the chip connectors using any of the bonding types

including thermal compression, single point bonding, C4 bonding, and conductive adhesive.” The “connecting line” limitation of claim 1 cannot be construed to include these bonding types, since that would make claim 5 redundant. *See Ethicon*, 93 F.3d 1572 at 1578 (construing claim language “connected to” to mean directly connected since a construction that included indirect connection would render the claim limitation “meaninglessly empty”). In other words, the antenna connecting line itself cannot include an element (the bonding type) that is claimed elsewhere (in claim 5) as a separate and distinct element. *See Phillips*, 2005 WL 1620331, at \*7 (“Differences among claims can also be a useful guide in understanding the meaning of particular claim terms”) (citing *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538 (Fed. Cir. 1991)). The presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004). Therefore, the only proper construction for “connecting line” is one that excludes the bonding types recited in claim 5.<sup>2</sup>

#### IV. THE ‘019 PATENT

The ‘019 Patent is directed to a method for grouping RFID tags to speed up communication between a reader (also called a base station) and a set of tags. Ex. 5 at col. 2, lines 55-58. “If the tags can be selected into at least two groups, the communication protocol is speeded up.” Ex. 5 at col. 11, lines

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<sup>2</sup> As discussed in Symbol’s Opening Brief at 20-21, this construction is equally applicable to the battery connecting lines recited in claim 19 (also not

34-36. The patent is directed to both active and passive tags. Ex. 5 at col. 1, lines 23-56. As with the '222 Patent, Intermec limits the alleged invention for litigation-driven reasons to passive tags, even though there is no such limitation in the patent and in the asserted claims. (Claim Chart Ex. 1).

Two claim limitations in the 3 independent claims (1, 9 and 18) need to be construed, referred to herein in shorthand form as “grouping” and “reading.” A single construction is needed for each limitation as used in all three independent claims.

Symbol’s constructions for these limitations reflect the ordinary meaning of the limitation in light of the specification and exclude that which was surrendered during prosecution. In contrast, Intermec ignores the patent disclosure and prosecution history. Even though Intermec asserts that “[r]esort to extrinsic evidence is not necessary” (Intermec Opening Brief at 1), the sole basis for Intermec’s claim construction for “grouping” and “reading” is attorney’s arguments. When Intermec describes (in its Opening Brief at 8-9) what is allegedly taught in the patent, it significantly omits any citation to the patent itself. In fact, Intermec’s proposed construction contradicts the unambiguous teaching of the '019 Patent and comprises conclusory argument that, as the *Phillips* court has ruled, should be ignored. *Phillips*, 2005 WL 1620331 at \*10.

The patentees of the '019 patent sought to improve known methods of reading all of the tags within the range of a reader. As was known

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asserted).



in the prior art, if multiple tags are to be read, a reader must use a method of communicating with them one at a time. In the specification, the patentees discuss a number of prior art communication protocols where a reader communicates with a plurality of tags by

polling<sup>3</sup> the tags and shutting down tags in turn until there is just one left. The information is then exchanged between the base station [reader] and the one tag, and then the one tag is turned off. The unidentified tags are then turned on, and the process is repeated until all the tags have the communication protocol completed.

Ex. 5, col. 2 at lines 45-52. In this way, the reader reads all of tags, one at a

time, until all of the tags are read. The patentees have called this step a multiple tag reading protocol. *See, e.g.*, Ex. 5 at col. 7, lines 53-56: “If more than one tag is in the field and the tag signals interfere with each other so that they can not be read at step 570, a multiple tag reading protocol is instituted in order to read the multiple tags at step 580.”

The alleged invention improves on the multiple tag reading protocols of the prior art, e.g., Ex. 5 at col. 2, lines 45-52, by first separating tags into groups. Specifically, the patentees explain that “[t]ypical protocols requires [sic] a time which is not linearly proportional to the number of tags in the field. More tags take a longer time per tag than fewer tags. If the tags can be selected into groups in some way, each group can be dealt with in a shorter time per tag, and the time taken to communicate with the first tag is markedly

shortened.” Ex. 5 at col. 2, lines 53-58. The patentees unambiguously distinguish between the first step of separating the tags into groups and the second step of reading, one at a time, all of the tags in a group.

Simply stated, the alleged invention adds an initial grouping step that shortens the time of the protocol. What this means is that a typical multiple tag reading protocol might take 10 seconds to read all of 16 tags, but only 3 seconds to read all of 8 tags. Thus, if the tags are first split into two groups of 8 tags, the total time to read all of the tags in each group, as grouped, is 6 seconds (3 seconds plus 3 seconds). The grouping step saves 4 seconds of time.

For litigation-driven reasons, Intermec collapses the grouping step and reading step in its Opening Brief at 8 and 9. Without citation to any intrinsic evidence, Intermec describes the alleged invention as follows:

[a]s the tags are grouped, the tags of one group are temporarily shut down or put in a mute state so they no longer respond to the reader while the tags in the other group are divided into smaller groups. The grouping continues until a group contains only one tag, at which point that tag is read. After the tag is read, it is shut down, and the grouping process starts over and is repeated for all the other tags until all of the tags have been read.

Intermec improperly combines grouping with the multiple tag reading protocol, even though the patent specification and the flow charts of Figures 5-9 describe the grouping step as taking place separately, in advance of the reading step, in order to speed up the entire process. Intermec’s construction

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<sup>3</sup> “Polling” means a process by which a reader selectively requests data from tags within its range.

defeats the whole point of the “invention.” With respect to the example in the last paragraph, under Intermec’s construction, the tags are regrouped after each of the 16 tags is read – the purpose of the ‘019 patent (which saves 4 seconds of time in the example) is completely lost.

Figure 2 of the ‘019 Patent illustrates one way of grouping according to the claimed invention, where tags are grouped on the basis of the polarization of their RF signals sent to the reader. Polarization means that the waves sent from the tags are spatially rotated due to the physical orientation of the tags as shown below:

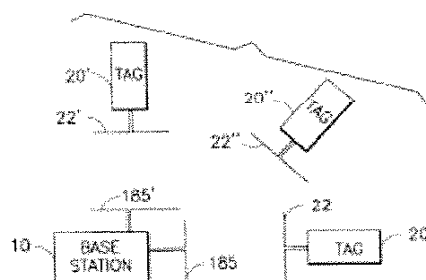


FIG.2

The base station or reader 10 has two perpendicular antennas 185 and 185' communicating with three tags 20, 20' and 20''. Since the waves from tag 20 are 90° out of phase (at a right angle) with antenna 185', antenna 185' will not pick up any signal from tag 20. The same is true for tag 20' and antenna 185. On the other hand, a signal from tag 20'' will be received by both antennae 185 and 185'. Figure 6 is the flow chart showing the method of reading the tags 20, 20' and 20''. The method first looks to see if antenna 185 can be used to read a single tag (630). If not, the process is repeated for antenna 185' (650). Since a group of two tags will respond to both antennae, the method uses a multiple

tag protocol at 660 to read the first group of tags 20' and 20" that respond to antenna 185' and turn them off. When step 630 is repeated, a second group of only tag 20 will reply to antenna 185 (because tag 20' will have already been turned off) and the tag reading will be finished. See Ex. 5 at col. 4, lines 13-37 and col. 8, line 36 - col. 9, line 16.

Accordingly, the patent's disclosure is clear. First, the "grouping" step takes place before the reading step (that includes the multiple tag reading protocol). Second, a multiple tag reading protocol is always used in the "reading" step when multiple tags are present so that the tags in each group are read as grouped. Because Symbol's construction of the "grouping" and "reading" limitations is consistent with the patent's disclosure, it should be adopted.

**A. Claim 1. "defining a plurality of RF tags into different groups according to a physical wave characteristic of the electromagnetic wave energy received from the RF tags"**

**Claims 9. "grouping the RF tags according to a physical characteristic of their responsive electromagnetic signals"**

**Claim 18. "grouping the RF tags according to a physical characteristic of their responsive electromagnetic signals"**

Intermec and Symbol agree that each of these limitations should be given their ordinary meaning to one skilled in the art. However, Intermec's claim construction adds the limitations of the preferred embodiments recited in

dependent claims 2-8 and 10-18 and ignores the specific exclusions made by the patentee during prosecution.

By limiting construction to a preferred embodiment and ignoring the prosecution history, Intermec violates the rules dictated by the *Phillips* court. 2005 WL 1620331 at \*17-18 (holding that the claim term at issue was not limited to the structures disclosed in the preferred embodiment) and at \*9 (“[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be”) (citing *Vitronics*, 90 F.3d at 1582-83); *Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005) (“The purpose of consulting the prosecution history in construing a claim is to ‘exclude any interpretation that was disclaimed during prosecution’”) (quoting *ZMI Corp. v. Cardiac Resuscitator Corp.*, 844 F.2d 1576, 1580 (Fed. Cir. 1988).

Contrary to Intermec’s assertion, nothing in the patent or file history limits the claims to specific embodiments of physical wave characteristics (apart from what the patentee surrendered during prosecution, as discussed below). *See, e.g.*, Ex. 5, at Col. 3, lines 3-14:

The most preferred embodiment of the invention is the method of selecting groups on the basis of the physical signal strength of the RF signal received from the tags by the base station. The tags have greater or less received signal strength depending on the distance to the base station antenna, the relative orientation of the tag and the base station antennas, and the local conditions of reflectors and absorbers of radiation around the tag. The base station may also select groups of tags according to the polarization or the

phase of the returned RF signal, the RF carrier or Doppler shifted RF carrier or modulation frequency sent by the tags, or any another physical signal from the tags. (emphasis added)

In addition, Intermec's claim construction fails to address the subject matter expressly excluded by the patentees during prosecution. To overcome the prior art during prosecution of the application that led to the '019 Patent, the patentees added the "physical wave characteristic" limitation to original claim 29 (which became claim 1 in the issued patent). After adding this limitation, the patentees distinguished the claim as amended from the prior art:

Claims 29-30, 38-39 are rejected on 35 U.S.C. 103(a) grounds. Neither Brophy et al., Cotie et al., nor Cesar et al. mention or suggest grouping the tags in accordance with "a physical wave characteristic of the electromagnetic wave energy received from the RF tags". Rather, the "tags" select themselves according to a signal sent from the "base station".

'019 File History, Ex. 6, Tab 1, Response filed March 17, 1999 at 5.

Accordingly, the patentees excluded certain types of grouping in the prior art from the scope of their alleged invention. Specifically, they excluded grouping whereby the tags, in response to a signal from the reader, "select themselves" based on information stored on the tag. As discussed in the tutorial of Symbol's Opening Brief, information can be stored in a tag's memory that reflects the tag's unique identification code or specific product data, such as the type, size or color of an article associated with a tag. For the Court's reference, examples of information stored in a tag's memory are set forth below:

Tag Memory			
Unique Tag ID	Product Data		
	Article (Dress, shirt, etc.)	Size	Color
100110010011	1110011	00111	0101

A reader can send a tag a message that asks the tag to select itself and respond if it has certain information stored on its tag - - such as certain digits in its Unique Tag ID or certain digits reflecting size data. Thus, the patentees distinguished the grouping of tags in the prior art (by information stored on the tag) from the grouping of tags in the alleged invention (by physical attributes such as strength of signal).

According, the construction for “grouping” should not be limited to a preferred embodiment and should take into account what the patentee surrendered during prosecution.

**B. Claim 1. “communicating with the tags in each defined group”**

**Claim 9. “reading the RF tags in each group”**

**Claim 18. “reading the RF tags in each group”**

Intermec fails to construe each of these limitations according their ordinary meaning in light of the patent disclosure.<sup>4</sup> *Phillips*, 2005 WL 1620331 at \*5. As discussed in Symbol’s Opening Brief at 28, the specification is clear.

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<sup>4</sup> Intermec contends that the ordinary meaning of “communicate” is broader than that of “read.” Intermec Opening Brief at 28. While Symbol agrees with this premise, Symbol’s construction for the remainder of the “reading” step is as set forth in its Opening Brief.

The patent consistently describes a multiple tag protocol reading all of the tags in a group, whenever multiple tags are encountered in a group. Moreover, the '019 Patent specification and flow charts of Figures 5-9 consistently describe the tags in each group being read as grouped.

Since the purpose of the alleged invention is to speed up the reading of (or communicating with) tags pursuant to prior art multiple tag reading protocols, it only makes sense that each group is read in its entirety as grouped, as Symbol submits. Otherwise, the "invention" would be unnecessary. *Phillips*, 2005 WL 1620331, at \*7 ("The claims, of course, do not stand alone. Rather, they are part of 'a fully integrated written instrument,' consisting principally of a specification that concludes with the claims. For that reason, claims 'must be read in view of the specification, of which they are a part.' As we stated in *Vitronics*, the specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'") (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 978-979 (Fed. Cir. 1995) and *Vitronics*, 90 F.3d at 1582).

As previously discussed, for litigation-driven purposes, Intermec's construction collapses the steps of grouping and the multiple tag reading protocol; Intermec's construction contradicts the stated purpose of the "invention" ( i.e., to save time) by regrouping the tags after each one of the tags in read.



Accordingly, the “reading” step in these claims, when construed in light of the specification, requires all of the tags in each group to be read as grouped.

## **V. THE ‘632 PATENT**

The ‘632 Patent relates to an apparatus and method for controlling a passive RF tag. Specifically, the ‘632 Patent (Exhibit 8) teaches controlling the tag modulation frequency of the RF signal returned from the tag to the base station.

Four independent claims (1, 13, 22, and 28) are asserted and two claim limitations are in dispute in each of the independent claims.<sup>5</sup> The claim limitations are “backscatter” and in shorthand form, “determining the tag oscillation frequency.”

As discussed below, Symbol’s construction adopts the patentee’s definition for “backscatter” and the ordinary meaning for “determining the tag oscillation frequency.” In contrast, Intermec’s construction for “backscatter” is litigation-driven and unsupported by intrinsic evidence; Intermec further adds the unnecessary limitation of a preferred embodiment to its construction for “determining the tag oscillation frequency.”

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<sup>5</sup> After the parties filed their opening claim construction briefs and four days prior to the due date for the rebuttal briefs, Intermec attempted to add additional dependent claims 2, 3, 14, 15, 23 and 24 of the ‘632 Patent to the case. Symbol objected on the grounds that additional claims were untimely and raised new issues that prejudiced Symbol. If Intermec addresses these claims in its rebuttal claim construction brief, Symbol reserves the right to submit a sur-rebuttal.

**A. Claims 1, 13, 22, and 28. “backscatter”**

When a tag receives an RF signal from a reader, it must send an RF signal back to the reader in order to communicate with the reader. If the tag has a battery powering its transmitter (i.e., it is an active tag), it has the option of generating its own RF signal to send to the reader. In a passive tag (or in an active tag that does not rely on the battery for all of the transmitting power), the tag returns the RF signal from the reader back to the reader. The return of a signal in this manner is sometimes referred to as scattering, hence the term “backscattering.” Before the tag sends the RF signal back, it removes the modulation information that was added by the reader and modulates the return signal with its own information, usually the tag identification code. This “backscattering,” or return of the modulated RF signal to the reader, is described in the ‘632 Patent as “reflecting” or “rebroadcasting.”

While Intermec eschews the need for extrinsic evidence (Intermec Opening Brief at 1), its entire construction for “backscatter” is based upon extrinsic facts. Intermec does not, simply because it cannot, cite to any supporting intrinsic evidence.

The patentees unambiguously defined the term “backscatter” in the ‘632 Patent as follows:

The “rebroadcast” or “reflection” of the incoming RF energy at the carrier frequency is conventionally called “back scattering”, even though the tag broadcasts the energy in a pattern determined solely by the tag antenna and most of the energy may not be directed “back” to the transmitting antenna.

‘632 Patent, Ex. 8 at col. 1, lines 46-51.

Intermec ignores the patent's clear disclosure. In its Opening Brief at 21, Intermec asserts that because the claims are limited to passive tags, "it would be imprecise to say that they 'rebroadcast' the RF signal, since 'rebroadcasting' implies an active regeneration of the RF signal. The term 'reflected' is appropriate because that is what is done with a passive tag." Nowhere in the '632 patent is such a distinction made. Intermec's construction is conclusory argument and should be disregarded. *Phillips*, 2005 WL 1620331 at \*10.

Moreover, one of the patentees directly refutes Intermec's proposed construction in the related '019 Patent (Exhibit 5). The '019 Patent relates to both active tags and passive tags, (see *infra* at 18), and shares a common inventor (Heinrich) and assignee with the '632 Patent. The '019 patent states:

[T]his type of tag carries no power supply of its own, it is called a "passive" tag to distinguish it from an active tag containing a battery. The battery supplies energy to run the active tag electronics, but not to broadcast the information from the tag antenna. ...

The "rebroadcast" of the incoming RF energy at the carrier frequency is conventionally called "back scattering", even though the tag broadcasts the energy in a pattern determined solely by the tag antenna and most of the energy may not be directed "back" to the transmitting antenna.

Ex. 5, at col. 1. lines 49-61 (emphasis added). Thus, one of the patentees of the '632 patent undermines the uncorroborated assertions made by Intermec. That patentee applies the term "rebroadcast" to passive tags. Thus,

“rebroadcast” is not limited active tags and does not imply the “active regeneration” of a signal by an active tag.

Intermec further ignores the ‘632 Patent’s clear disclosure when it construes “backscatter” to include “centered about the carrier frequency” instead of “at the carrier frequency.” Intermec asserts that Column 1, lines 34-39 of the ‘632 Patent supports its construction. Intermec Opening Brief at 21-22. However, this citation does not support Intermec’s position for three reasons.

First, the cited portion describes a prior art device and is irrelevant to the alleged invention. Second, the phrase “centered about the carrier frequency” appears nowhere in the cited portion. Instead, the sole basis for Intermec’s position is its attorney’s *interpretation* of what the cited portion means -- mere attorney’s argument, which should not be considered.

Third, the specification of the ‘632 Patent clearly defines “backscatter” to include “at the carrier frequency” (Ex. 8, at col. 1, lines 46-51, also excerpted above). The patentees use the precise phrase “at the carrier frequency” that Symbol adopts in its construction. In fact, the patentees use the precise phrase “at the carrier frequency” to describe the alleged invention as well as to the prior art device referenced in the portion cited by Intermec (Ex. 8, at col. 1, lines 34-39). Indeed, as shown in the excerpt above, one of the patentees of the ‘632 Patent similarly defines “backscatter” to include “at the carrier frequency” in the related ‘019 patent.

Accordingly, Symbol's construction of "backscatter" should be adopted because it is consistent with the specification of the '632 Patent.

*Phillips*, 2005 WL 1620331, at \*6.

**B. Claim 1. "the tag oscillation frequency determined by the RF signal sent from the base station"**

**Claim 13. "adjusting the tag oscillation frequency in response to the RF signal from the base station"**

**Claim 22. "the tag oscillation frequency determined by the RF signals sent by the base station"**

**Claim 28. "the tag oscillation frequency determined by the RF signal sent from the base station"**

Symbol construes these limitations according to their ordinary meaning. In contrast, Intermec limits these claims to the preferred embodiment and, in particular, to the preferred embodiment recited in dependent claims 2, 14, and 23. There is no basis whatsoever in the intrinsic evidence for reading such a limitation into the claims.

The patent's disclosure is clear. These limitations should be construed according to their ordinary meaning. As previously noted, in response to an RF signal from the reader, the tag returns a modulated RF signal back to the reader. The oscillation frequency for the tag's signal is determined by the RF signal initially sent from the reader. The RF signal sent by the reader includes a number of physical wave characteristics such as carrier wave frequency, a modulation frequency, an amplitude, and a phase. Simply stated, the oscillation frequency of the tag is determined by any number

of physical wave characteristics of the RF signal sent from the reader; the oscillation frequency of the tag is not determined by only one physical wave characteristic (i.e., the preferred embodiment of modulation frequency). Nowhere in the patent or the file history is there support for any special or narrower meaning as Intermec suggests.

Despite Intermec's assertion that "[r]esort to extrinsic evidence is not necessary," (Intermec Opening Brief at 1), Intermec, yet again, relies solely on conclusory argument that the alleged invention must be limited to the preferred embodiment in order to operate. Specifically, Intermec argues in its Opening Brief at 24 that "the invention disclosed in the '632 patent would not function if the carrier frequency were used" and that "[n]o such demodulated digital signal could be derived from the carrier frequency of the RF signal and without that demodulated signal, the remainder of the invention as disclosed and claimed could not function." Intermec's argument has no support whatsoever in the patent specification or in the file history. Intermec's conclusory argument, yet again, should be ignored. *Phillips*, 2005 WL 1620331 at \*10.

Significantly, the specification directly refutes Intermec's conclusory arguments. The specification refers to the physical wave characteristics of the RF signal as "patterns" and expressly teaches that "any pattern or subpattern in the signal sent out from the base station could be used to generate an output of the signal receiving section 36 in order to adjust the frequency and optionally the phase of the tag oscillator." Ex. 8, at col. 4,

lines 27-31 (emphasis added). “Any pattern or subpattern” is any physical wave characteristic (e.g., amplitude, carrier wave frequency, etc.) and is not limited to the specific “pattern” of the modulation frequency. Thus, the patent teaches that any physical wave characteristic of the RF signal sent from the reader determines the oscillation frequency of the tag’s signal back to the reader.

Furthermore, the patentees define the “invention” broadly in the Summary of the Invention section of the ‘632 Patent:

The present invention is to have a passive RF tag with a tag oscillator with an oscillation frequency which the tag can lock to a signal sent from the base station to the tag. An innovative low current oscillator design accomplishes this invention. Innovative low current ancillary circuits are also provided. The preferred signal is the modulation frequency of the modulated RF signal that the base station sends to the tag.

Ex. 8, at col. 3, lines 8-15 (emphasis added). Accordingly, the independent claims include the broad term “RF signal” so that the tag oscillation frequency can be determined by any physical wave characteristic of the RF signal sent by the base station (e.g., carrier wave frequency, carrier wave amplitude).

Indeed, the narrower dependent claims 2, 14 and 23 underscore the fact that the independent claims are broad in scope. Consistent with the patentees’ use of the broad term “RF signal” in the independent claims to refer to any physical wave characteristic, the patentees added a limitation in the dependent claims to a specific physical wave characteristic (i.e., the preferred embodiment of modulation frequency). *Phillips*, 2005 WL 1620331, at \*7

(“Differences among claims can also be a useful guide in understanding the meaning of particular claim terms. For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.”) (citing *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538 (Fed. Cir. 1991) and *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004)); *TurboCare Div. of Demag Delaval Turbomachinery Corp. v. Gen. Elec. Co.*, 264 F.3d 1111, 1123 (Fed. Cir. 2001) (claim terms should not be read to contain a limitation “where another claim restricts the invention in exactly the [same] manner”); *Dow Chem. Co. v. United States*, 226 F.3d 1334, 1341-42 (Fed. Cir. 2000) (concluding that an independent claim should be given broader scope than a dependent claim to avoid rendering the dependent claim redundant).

Accordingly, this claim limitation should not be limited to the preferred embodiment and should be given its ordinary meaning as proposed by Symbol.



## VI. CONCLUSION

For the foregoing reasons, Symbol respectfully requests the Court to adopt the claim constructions discussed above for the disputed claim terms in the Intermec Patents.

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August 15, 2005

**CERTIFICATE OF SERVICE**

I, Arthur G. Connolly, III, hereby certify that on August 15, 2005, I caused to be electronically filed a true and correct copy of the foregoing Motion and Order for Admission *Pro Hac Vice* with the Clerk of Court using CM/ECF which will send notification of such filing to the following counsel of record:

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I further certify that on August 15, 2005, I caused a copy of the foregoing document to be served by hand delivery on the above-listed counsel, and that a copy was served on the following non-registered participants on the same date in the manner indicated:

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